IN THE CLAIMS

Please amend the claims as follows:

Claims 1-52 (Canceled).

Claim 53 (Currently amended): A method of solubilizing carbon nanotubes,
comprising ~~the steps~~:

a)   providing, in any order:

carbon nanotubes, and

urea as a precursor of isocyanic acid and/or cyanate ion, said isocyanic acid
and/or cyanate ion being capable of undergoing a polymerization reaction;

b)   mixing together the nanotubes with urea;

c)   initiating a polymerization reaction of the isocyanic acid and/or cyanate ion to yield
modified carbon nanotubes, wherein the carbon nanotubes have functional groups on their
surface and/or ends, and wherein said polymerization reaction occurs at said functional
groups,

<u>wherein, before, during or after the polymerization reaction, at least one aldehyde is
added to the mixture, further comprising</u> ~~the steps of~~

<u>heating the mixture, or alternatively,</u>

<u>acidifying the mixture, or</u>

<u>both heating and acidifying the mixture,</u>

<u>wherein the at least one aldehyde is added during the heating and/or acidification.</u>

Claim 54 (Currently amended): The method according to claim 53, wherein the
functional groups are oxygenated functional groups selected from the group <u>consisting of</u>

~~comprising~~ C—O species (alcohol, phenol, ether, epoxide), C=O species (aldehyde, ketone, quinone), and O—C=O species (carboxylic acid, ester, anhydride, lactone, pyrone).

Claim 55 (Canceled).

Claim 56 (Previously presented): The method according to claim 53, wherein approximately 1 per 200 to 1 per 10 carbon atoms of the carbon nanotubes are in an oxidized state.

Claim 57 (Previously presented): The method according to claim 53, wherein approximately 1 per 150 to 1 per 20 carbon atoms of the carbon nanotubes are in an oxidized state.

Claim 58 (Previously presented): The method according to claim 57, wherein approximately 1 per 100 carbon atoms of the carbon nanotubes are in an oxidized state.

Claim 59 (Canceled).

Claim 60 (Currently amended): The method according to claim [[59]] 53, wherein the heating and/or acidifying is such, that the precursor of the at least one type of monomer molecules is induced to form said monomer molecules.

Claim 61 (Previously presented): The method according to claim 53, wherein the at least one type of monomer molecules or the precursor of the at least one type of monomer molecules is provided in a solvent.

Claim 62 (Previously presented): The method according to claim 53, wherein the carbon nanotubes are provided in a solvent.

Claim 63 (Previously presented): The method according to claim 61, wherein the solvent(s) can be heated to a temperature close to or above the melting point of the monomer or its precursor, without decomposing.

Claim 64 (Canceled).

Claim 65 (Canceled).

Claim 66 (Currently amended): The method according to claim [[64]] 53, wherein the at least one aldehyde is selected from the group consisting of comprising acetaldehyde, benzaldehyde, carboxybenzaldehyde, cinnamaldehyde, chlorobenzaldehyde, ferrocene carboxaldehyde, formaldehyde, furfural, glutaraldehyde, paraformaldehyde, polyhydroxyaldehyde, propionaldehyde, pyridine aldehyde, salicylaldehyde and valeraldehyde.

Claim 67 (Currently amended): The method according to claim 66, wherein the benzaldehyde is substituted with at least one electron-donating group, selected from —NHR, —NRR', —OH, —OR, [[—C6H5]] —C_6H_5, [[—CH3]] —CH_3, [[—CH2R]] —CH_2R, [[—CHR2]] —CHR_2 and [[CR3]] CR_3, wherein R and R' represent linear or branched [[C1-C12]] C_1-C_{12} alkyl groups, [[C3-C8]] C_3-C_8 cycloalkyl groups, [[C6-C12]] C_6-C_{12} aralkyl groups, [[C6-C12]] C_6-C_{12} aryl groups, poly(ethylene oxide), poly(propylene oxide), and

poly(ethylene oxide)-co-poly(propylene oxide)block co-polymers.

Claim 68 (Previously presented): The method according to claim 67, wherein the at least one electron-donating group on benzaldehyde is in the para-position.

Claim 69 (Currently amended): The method according to claim 67, wherein the at least one electron-donating group on benzaldehyde is —OH or —OR, wherein R represents a linear or branched [[C1-C12]] C_1-C_{12} alkyl group, a [[C3-C8]] C_3-C_8 cycloalkyl group, a [[C6-C12]] C_6-C_{12} aralkyl group, a [[C6-C12]] C_6-C_{12} aryl group, poly(ethylene oxide), poly(propylene oxide), or poly(ethylene oxide)-co-poly(propylene oxide)block copolymer.

Claim 70 (Previously presented): The method according to claim [[64]] 53, wherein the at least one aldehyde is selected from the group comprising p-anisaldehyde, 4-propoxybenzaldehyde and 4-(hexyloxy)benzaldehyde.

Claim 71 (Previously presented): The method according to claim 53, wherein, after step c), non-reacted monomer and/or precursor is removed from the reaction.

Claim 72 (Previously presented): The method according to claim 71, wherein the removal occurs by a salt precipitation step, and/or by centrifugation or filtration, each of both possibilities optionally followed by washing, and/or by size separation and/or adsorption, and/or by enzymatic degradation, and/or by selective burning and/or by plasma treatment.

Claim 73 (Currently amended): The method according to claim 72, wherein the salt precipitation occurs by addition of a salt, preferably a perchlorate salt, the filtration occurs

using a membrane filter having a pore size smaller than 1 μm but larger than [[0,01]] 0.01

μm, the size separation and/or adsorption occurs by gel-filtration, and the enzymatic

degradation occurs by means of urease.

Claim 74 (Previously presented): The method according to claim 53, wherein after

polymerization an amine-reactive compound, such as carboxylic acid anhydride, is added and

reacted with the modified carbon nanotubes.

Claim 75 (Previously presented): The method according to claim 53, wherein the

modified carbon nanotubes are dissolved in aqueous solution or in alcoholic solution,

preferably methanolic solution.

Claim 76 (Currently amended): A method of solubilizing carbon nanotubes,

comprising the steps:

a)   Providing providing, in any order:

carbon nanotubes, and

urea;

b)   mixing together the nanotubes and the urea;

c)   heating the mixture of b)

wherein the heating is for approximately 1-60 min.

Claim 77 (Previously presented): The method according to claim 76, wherein the

urea as a precursor of isocyanic acid and/or cyanate ion, said isocyanic acid and/or cyanate

ion being capable of undergoing a polymerization reaction and further including the steps of

initiating a polymerization reaction of the isocyanic acid and/or cyanate ion to yield modified

carbon nanotubes, wherein the carbon nanotubes have functional groups on their surface and/or ends, and wherein said polymerization reaction occurs at said functional groups.

Claim 78 (Previously presented): The method according to claim 76, wherein the heating is above the melting temperature of urea.

Claim 79 (Previously presented): The method according to claim 78, wherein the heating is in the range of approximately 130°C-180°C, preferably approximately 150°C-170°C, more preferably approximately 150°C-160°C, most preferably approximately 150°C.

Claim 80 (Currently amended): The method according to claim 76, wherein the heating is for approximately 1-60 min, preferably approximately 3-20 min, more preferably approximately 5-15 min, most preferably approximately 10 minutes.

Claim 81 (Previously presented): The method according to claim 76, wherein at least one aldehyde is added to the mixture of b).

Claim 82 (Previously presented): The method according to claim 81, wherein the at least one aldehyde is added to the mixture of b) before or during step c).

Claim 83 (Previously presented): The method according to claim 82, wherein the at least one aldehyde is added during step c), preferably 1-5 minutes after step c) has been initiated, most preferably 1-3 minutes after step c) has been initiated.

Claim 84 (Currently amended): The method according to claim 81, wherein the at

least one aldehyde is selected from the group <u>consisting of</u> ~~comprising~~ acetaldehyde,

benzaldehyde, carboxybenzaldehyde, cinnamaldehyde, chlorobenzaldehyde, ferrocene

carboxaldehyde, formaldehyde, furfural, glutaraldehyde, paraformaldehyde,

polyhydroxyaldehyde, propionaldehyde, pyridine aldehyde, salicylaldehyde and

valeraldehyde.

Claim 85 (Currently amended): The method according to claim 84, wherein the

benzaldehyde is substituted with at least one electron-donating group, selected from —NHR,

—NRR', —OH, —OR, [[—C6H5]] —$\underline{C_6H_5}$, [[—CH3]] —$\underline{CH_3}$, [[—CH2R]] —$\underline{CH_2R}$,

[[—CHR2]] —$\underline{CHR_2}$ and [[CR3]] $\underline{CR_3}$, wherein R and R' represent linear or branched [[C1-

C12]] $\underline{C_1\text{-}C_{12}}$ alkyl groups, [[C3-C8]] $\underline{C_3\text{-}C_8}$ cycloalkyl groups, [[C6-C12]] $\underline{C_6\text{-}C_{12}}$ aralkyl

groups, [[C6-C12]] $\underline{C_6\text{-}C_{12}}$ aryl groups, poly(ethylene oxide), poly(propylene oxide), and

poly(ethylene oxide)-co-poly(propylene oxide)block co-polymers.

Claim 86 (Previously presented): The method according to claim 85, wherein the at

least one electron-donating group on benzaldehyde is in the para-position.

Claim 87 (Currently amended): The method according to claim 85, wherein the at

least one electron-donating group on benzaldehyde is —OH or —OR, wherein R represents a

linear or branched [[C1-C12]] $\underline{C_1\text{-}C_{12}}$ alkyl group, a [[C3-C8]] $\underline{C_3\text{-}C_8}$ cycloalkyl group, a

[[C6-C12]] $\underline{C_6\text{-}C_{12}}$ aralkyl group, a [[C6-C12]] $\underline{C_6\text{-}C_{12}}$ aryl group, poly(ethylene oxide),

poly(propylene oxide), or poly(ethylene oxide)-co-poly(propylene oxide)block copolymer.

Claim 88 (Previously presented): The method according to claim 81, wherein the at

least one aldehyde is selected from the group comprising p-anisaldehyde, 4-

propoxybenzaldehyde and 4-(hexyloxy)benzaldehyde.

Claim 89 (Previously presented): The method according to claim 76, wherein the product of step c) is dissolved in aqueous solution or alcoholic, preferably methanolic solution or a mixture of an aqueous and an alcoholic solution, and subjected to a salt precipitation step, and/or centrifugation or filtration, each of both possibilities optionally followed by washing, and/or subjected to size separation and/or adsorption and/or enzymatic degradation, and/or selective burning, and/or plasma treatment.

Claim 90 (Previously presented): The method according to claim 89, wherein the product of step c) is dissolved in aqueous solution or alcoholic, preferably methanolic solution or a mixture of an aqueous and an alcoholic solution, and is subjected to an evaporation step.

Claim 91 (Previously presented): A carbon nanotube, produced by the method according to claim 53.

Claim 92 (Previously presented): The carbon nanotube according to claim 91, wherein the nanotube is non-bundled.

Claim 93 (Previously presented): The carbon nanotube according to claim 92, wherein it is decorated in a pearl chain-like manner with discrete bodies, when viewed by AFM.

Claim 94 (Currently amended): The carbon nanotube according to claim 91, having

one or more physical characteristics selected from the group consisting of comprising:

a solubility in water or aqueous solution of up to approximately 10 g/l and/or a

solubility in methanol or methanolic solution of up to approximately 1 g/l,

an absorption maximum between 210 nm and 250 nm, and

one or several or all of the following absorption maxima in the infrared in the

following wavenumber regions: 3470-3490 [[cm-1]] cm^{-1}, 3420-3440 [[cm-1]]

cm^{-1}, 3365-3385 [[cm-1]] cm^{-1}, 3330-3350 [[cm-1]] cm^{-1}, 3245-3265 [[cm-1]]

cm^{-1}, 3210-3230 [[cm-1]] cm^{-1}, 1660-1680 [[cm-1]] cm^{-1}, 1610-1630 [[cm-1]]

cm^{-1}, 1450-1470 [[cm-1]] cm^{-1}, 1330-1350 [[cm-1]] cm^{-1} and 1095-1115 [[cm-

1]] cm^{-1}.

Claim 95 (Previously presented): An association of carbon nanotubes according to

claim 93, wherein the car-bon nanotubes are non-bundled, but interconnected at their ends

through said discrete bodies into branched structures, when viewed by AFM.

Claim 96 (Previously presented): A carbon nanotube or an association of carbon

nanotubes produced by the method according to claim 90.

Claim 97 (Previously presented): The carbon nanotube or association of carbon

nanotubes according to claim 96, which is at least partially crystalline.

Claim 98 (Currently amended): The carbon nanotube or association of carbon

nanotubes according to claim 96, having one or more physical characteristics selected from

the group consisting of comprising:

one or several or all of the following absorption maxima in the infrared in the

following wavenumber regions: 3370-3390 [[cm-1]] cm^{-1}, 3205-3225 [[cm-1]]

cm^{-1}, 3060-3080 [[cm-1]] cm^{-1}, 1700-1720 [[cm-1]] cm^{-1}, 1680-1700 [[cm-1]]

cm^{-1}, 1655-1675 [[cm-1]] cm^{-1}, 1580-1600 [[cm-1]] cm^{-1}, 1500-1520 [[cm-1]]

cm^{-1}, 1440-1460 [[cm-1]] cm^{-1}, 1395-1415 [[cm-1]] cm^{-1}, 1245-1265 [[cm-1]]

cm^{-1}, 1155-1175 [[cm-1]] cm^{-1}, 1020-1040 [[cm-1]] cm^{-1}, 845-865 [[cm-1]]

cm^{-1}, 795-815 [[cm-1]] cm^{-1},

having both crystalline and amorphous parts, when viewed under AFM, TEM and/or

[[SEM.]] SEM, and

a solubility in water or aqueous solution of up to approximately 10 g/l and/or a

solubility in methanol or methanolic solution of up to approximately 1 g/l.

Claim 99 (Currently amended): A method of conducting electricity comprising

deploying Use of a carbon nanotube according to claim 91 in an electronic device, a

nanoelectronic device, a memory element, a field emission device, a sensor, an actuator, an

electromechanical device, a composite material, a coating/paint/paste, a hydrogen storage

device, a battery or fuel cell, a supercapacitor, a photoelectrochemical device, a photovoltaic

device, an energy conversion device, a light emitting diode, a liquid crystal display, a probe

scanning probe microscopy, a non-linear optical device or antenna, or a catalyst.

Claim 100 (New): A method of absorbing gas molecules comprising deploying a

carbon nanotube according to claim 91 in an electronic device, a nanoelectronic device, a

memory element, a field emission device, a sensor, an actuator, an electromechanical device,

a composite material, a coating/paint/paste, a hydrogen storage device, a battery or fuel cell, a

supercapacitor, a photoelectrochemical device, a photovoltaic device, an energy conversion

device, a light emitting diode, a liquid crystal display, a probe scanning probe microscopy, a

non-linear optical device or antenna, or a catalyst.